

The Examiner asserts that claim 6 limits the polyol to a polyether glycol and/or a polyester glycol. The Examiner contends that since glycols have only two functional groups, it is not clear whether this claim is limited to bi-functional polyols or is intended to include tri-functional polyols, since claims 7 and 8, which depend from claim 6, recite tri-functional polyols. With respect to claim 8, the Examiner contends that this claim incorporates the limitation “polyole is bi-functional and/or tri-functional”, but also contains a limitation respecting the ratio of bi-functional to tri-functional polyols.

Claim 6 has been canceled, rendering the rejection of this claim moot. Claim 1 has been amended to delete the term “and/or”, in order to clarify the nature of the functionality of the polyols recited therein. Claim 7 has been amended to depend from claim 1, and to recite that the polyurethane of formula (I) contains bi- and tri-functional polyols. Claim 8, dependent from claim 7, limits the ratio of bi-functional to tri-functional polyols recited in claim 7.

Applicants submit that the claims as amended herein are no longer indefinite, and respectfully request that the rejections be withdrawn.

III Claims Objections

The Examiner has objected to claims 7-15 under 37 C.F.R. 1.75(c) for failing to limit the subject matter of a previous claim. The Examiner notes that claim 7 and 8 recite the use of tri-functional polyols, while claim 6, from which they depend, specifies that the polyol be bi-functional.

Claim 6 has been canceled. Claim 7 has been amended to depend from claim 1, and to recite that the polyurethane of formula (I) contains bi- and tri-functional polyols. Claim 8, dependent from claim 7, limits the ratio of bi-functional to tri-functional polyols recited in claim 7.

Accordingly, the objection to claims 7-15 should be withdrawn.

blend of suitable polyols in any amounts necessary to optimize the crosslink density of the resulting polyurethane layers.

This rejection is respectfully traversed. As the Examiner concedes, Mück is completely silent respecting the use of a polyether polyol having the claimed ratio of primary to secondary hydroxyl functional end groups.

Contrary to the Examiner's assertion, there is nothing in the disclosure of Oertel to teach or suggest to one of ordinary skill in the art the use of polyols having the claimed range of primary to secondary hydroxyl end groups of between approximately 2:1 and 1:6. Oertel discloses, at page 63, that the physical properties of the polyethers can be modified in "many ways", including type and functionality of the starter, and segmentation of the chain. Indeed, Oertel teaches away from the use of propylene glycols tipped with ethylene oxide, noting, at page 63, that such combinations have a tendency toward gel formation in water. Without the hindsight of applicant's disclosure, one of ordinary skill in the art would simply not have been motivated to select polyols having the claimed range of primary to secondary hydroxyl end groups of between approximately 2:1 and 1:6, or to combine the teachings of Oertel and Mück.

Moreover, the present claims require that the volatile organic content be below approximately 100 ppm. The Examiner asserts that the Examples of Mück teach reacting and drying the layers prior to completion, and as such, they would have no residual solvent or volatile chemicals present. Contrary to the Examiner's assertion, Mück does not teach or suggest a composite structure having a volatile organic content below approximately 100 ppm. The drying stages of Mück do not necessarily mean that the resulting product would have the claimed volatile organic content levels. It certainly would not have been obvious to one of ordinary skill in the art, based on the teachings of Mück or Oertel, either alone or in combination, that such a composite structure having the claimed levels of volatile organic content could be prepared.

Accordingly, applicants believe that the Examiner has failed to make a *prima facie* case of obviousness, and respectfully request that the rejection be withdrawn.

(ii) Claims 1-12, 14-15, and 28-30 stand rejected under 35 U.S.C. § 103(a) as obvious over Lewis *et al.* (U.S. Patent No. 3,816,618, "Lewis") in view of Oertel. The Examiner asserts that Lewis discloses compositions comprising polyurethane coatings for treating leather or leather substitutes. The Examiner concedes that Lewis does not suggest the use of a polyether polyol having a specified ratio of primary to secondary hydroxyl groups, and again cites the secondary reference Oertel to provide this teaching. The Examiner further concedes that Lewis does not disclose the ratio of diols to triols in the polyurethane reaction mixture, but concludes that since the polyols contribute to the flexibility of the polyurethane coating, it would have been *prima facie* obvious to use the diols and triols of Lewis in admixture in any amounts necessary to optimize the flexibility of the resulting coating.

This rejection is respectfully traversed. Lewis is only directed to urethane coating compositions containing nitrocellulose. Lewis teaches that the nitrocellulose is present in the composition in about 5 to about 65%, preferably about 15 to about 45% (see col. 1, lines 31-35). Lewis does not teach or suggest a composite structure that does not contain nitrocellulose. One of ordinary skill in the art, based on the teachings of Lewis, would have no motivation to prepare the composite structures called for in present claims.

As set forth above in section (i), there is no hint in Oertel regarding the use of polyols having the claimed range of primary to secondary hydroxyl end groups of between approximately 2:1 and 1:6. Without the hindsight of the present disclosure, one of ordinary skill in the art would simply not have been motivated to select polyols having the claimed range of primary to secondary hydroxyl end groups of between approximately 2:1 and 1:6, or to combine the teachings of Oertel and Lewis. The present rejection can only be advanced based on improper hindsight reconstruction, which has been condemned by the courts. *Monarch Knitting Machinery Corp. v. Sulzer Morat GmbH*, 139 F.3d 977, 45 USPQ2d 1977, 1981 (Fed. Cir. 1998).

Moreover, the present claims require that the volatile organic content be below approximately 100 ppm. The Examiner asserts that Lewis teaches reacting and drying the layers prior to completion, and as such, they would have no residual solvent or volatile chemicals present.

and triols in any amount necessary in order to optimize the flame resistant and shrinkage properties of the Fishbein foams.

Claim 1 has been amended to incorporate the limitation of original claim 15.

Claim 1, as amended herein, is not obvious over Fishbein. Moreover, claims 8, 10-11, and 14, which depend from claim 1, are also not obvious over Fishbein. This rejection should therefore be withdrawn.

VI Double Patenting

The Examiner states that claim 6 is considered to be a substantial duplicate of claim 5, and that it will be objected to should claim 5 be found allowable.

Claim 6 has been canceled, rendering this potential objection moot.

In view of the above, each of the presently pending claims in this application is believed to be in condition for allowance. Accordingly, the Examiner is respectfully requested to pass this application to issue.

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Respectfully submitted,

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